

## **SEIJI NAKAGAWA**

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### **EDUCATION**

Ph.D. Materials Sciences and Mineral Engineering, University of California at Berkeley, 1998  
M.E. Civil Engineering, Kyoto University, Japan, 1993  
B.E. Civil Engineering, Kyoto University, Japan, 1991

### **RESEARCH AREA**

Geophysics and geomechanics. Mechanical properties of weakly cemented granular media.  
Seismic wave propagation within fractured and complex geomaterials. Mechanical and seismic behavior of fractures and faults. Geophysical properties of methane-hydrate-bearing sediments. Geophysical properties of rocks during super-critical CO<sub>2</sub> injection.

### **WORK EXPERIENCE/HISTORY**

2001 -Present	Research Scientist, Energy Geosciences Division (formerly Earth Sciences Division), Lawrence Berkeley National Laboratory
1998 - 2001	Post-doctoral Researcher, Lawrence Berkeley National Laboratory
1995 - 1998	Graduate Student Research Assistant, Lawrence Berkeley National Laboratory
1993 - 1995	Graduate Student Researcher, University of California at Berkeley

### **AWARDS AND RECOGNITIONS**

Best Research Presentation Award, BES Annual Symposium on Geoscience, 2012.  
Top 25 papers, recognized at 70th Annual meeting for Society of Exploration Geophysicists, 2001  
Neville G.W.Cook Award (Best Ph.D. Thesis Award in Rock Mechanics), presented by US National Committee for Rock Mechanics, 2000  
Outstanding Student Presentation Award in Seismology, Fall Annual Meeting of American Geophysical Union, 1998

### **INVENTIVE LABORATORY TOOLS AND EXPERIMENTAL TECHNIQUES**

True-triaxial pressure vessel with X-ray Imaging capability (Nakagawa et al., 2005, Fall AGU meeting)  
Polyaxial loading system with concurrent optical visualization and acoustic emission monitoring for hydraulic fracturing experiment (Nakagawa et al., 2015, Fall AGU meeting)  
Shaped-core uniaxial compression test method for borehole breakout study (Nakagawa and Ewy, 2008, ARMA meeting)  
Phased-allay compaction cell for clay anisotropy characterization (Nihei et al, 2011, Geophysics)  
Sonic-frequency resonant bar test and apparatus for seismic measurement of short rock and sediment cores during CO<sub>2</sub> flooding with concurrent X-ray CT scanning (Nakagawa, 2011, Rev. Sci. Instr.; Nakagawa et al. 2013, Geophysical Prospecting)

## SELECTED PUBLICATIONS

- Dou, S. S. Nakagawa, D. Dreger, and J. Ajo-Franklin. 2016. A rock-physics investigation of unconsolidated saline permafrost: P-wave properties from laboratory ultrasonic measurements, DOI: 10.1190/geo2015-0176.1
- Nakagawa, S., S. Nakashima, and V.A. Korneev. 2015. Laboratory measurements of guided-wave propagation within a fluid-saturated fracture, *Geophys. Prospect.*, 64, 143-156.
- Nakagawa, S. and V.A. Korneev. 2014. Effect of fracture compliance on wave propagation within a fluid-filled fracture, *J. Acoust. Soc. Am.*, **135**(6), 3186-97, doi: 10.1121/1.4875333..
- Nakagawa, S., T.J. Kneafsey, T.M. Daley, B.M. Freifeld, and E.V. Rees. 2013. Laboratory seismic monitoring of supercritical CO<sub>2</sub> flooding in sandstone cores using the Split Hopkinson Resonant Bar technique with concurrent x-ray CT imaging, *Geophys. Prospect.*, **61**, 254-269, doi: 10.1111/1365-2478.12027.
- Nakagawa, S. 2011. Split Hopkinson resonant bar test for sonic-frequency acoustic velocity and attenuation measurements of small, isotropic geological samples, *Rev. Sci. Instrum.*, **82**, 044901, doi:10.1063/1.3579501.
- Nihei, K.T., S. Nakagawa, F. Reverdy, L. R. Myer, L. Duranti, and G. Ball. 2011. Phased array compaction cell for measurement of the transversely isotropic elastic properties of compacting sediments , *Geophysics*, **76**, 1–11, doi:10.1190/1.3567160.
- Berryman, J. and S. Nakagawa. 2010. Inverse Problem in Anisotropic Poroelasticity: Drained Constants from Undrained Ultrasound Measurements, *J. Acoust. Soc. Am.*, **127**, 720-729, doi: 10.1121/1.3277162.
- Nakagawa, S. 2008. Poroelastic modeling of fracture-seismic wave interaction, *Int. J. of the JCRM*, **4**(2), 5-14.
- Nakagawa, S., M.A.Schoenberg, 2007, Poroelastic modeling of seismic boundary conditions across a fracture, *J. Acoust. Soc. Am.*, **122**(2), 831-847.
- Wenk, H.-R., I. Lonardelli,, H. Franz, K. Nihei and S. Nakagawa. 2007. Preferred orientation and elastic anisotropy of illite-rich shale, *Geophysics*, **72**(2), E69-E75, DOI 10.1190/1.2432263
- Bessenger, B., N.G.W. Cook, L.R. Myer, S. Nakagawa, K.T. Nihei, P.H. Benito, and R. Suarez-Rivera, 2003, The role of compressive stresses in jointing on Vancouver Island, British Columbia, *Journal of Structural Geology*, **25**(6), 983-1000.
- Nakagawa, S. and R.W. Ewy, 2008, Shaped-core uniaxial compression test for studying borehole breakout in rocks, In Proceedings for American Rock Mechanics Association Meeting, Paper No.158, San Francisco, July.
- Nakagawa, S., L. Tomutsa, and L.R. Myer, 2005, Formation of slot-shaped borehole breakout within weakly cemented sandstones, Presented at American Geophysical Union Fall Meeting, San Francisco, abstract#MR33A-0160.
- Nakagawa, S., K. T. Nihei, and L. R. Myer, 2003, 3-D elastic wave scattering by a layer containing vertical periodic fractures, *J. Acoust. Soc. Am.*, **113**(6), 3012-3023.
- Nakagawa, S., K. T. Nihei, and L. R. Myer, 2002, Elastic wave propagation along a set of parallel fractures, *Geophys. Res. Lett.*, AGU DOI: 10.1029/2002GL014925.
- Nihei, K. T., N. G. W. Cook, S. Nakagawa, L.R. Myer, and B. Hilbert, 2000, Frictional effects on the volumetric strain of sandstone, *Int. J. Rock Mech. Min. Sci. & Geomech. Abstr.*